WHAT IS CLAIMED IS:

1. A method of manufacturing an optical module including a transparent substrate having an electro-optical element on one surface side and an optical transmission line support member, which is arranged on the other surface side of the transparent substrate and supports one end of an optical transmission line, the method comprising:

forming a guide pin in either the transparent substrate or the optical transmission line support member;

forming a guide hole, in which the guide pin is to be inserted, in the other one of the transparent substrate and the optical transmission line support member, in which the guide pin is not formed, such that the diameter of the guide hole is made larger as compared with the diameter of the guide pin;

arranging a jig having a protruding portion, whose diameter is substantially the same as the diameter of the guide pin such that the protruding portion isinserted into the guide hole;

filling up a gap between the protruding portion and the guide hole with a filler material, which is cured by carrying out a predetermined processing;

adjusting a position of the jig within a range in which the protruding portion is movable inside the guide hole;

curing the filler material by carrying out the predetermined processing to the filler material, which is filled up in the gap between the protruding portion and the guide hole; and

pulling out the protruding portion from the guide hole after having cured the filler material.

2. The manufacturing method of the optical module according to claim 1, further comprising:

mounting the optical transmission line support member on the transparent substrate such that the guide pin is inserted into the guide hole, in which the filler material is already cured.

3. A method of manufacturing an optical module including a transparent substrate having an electro-optical element on one surface side and an optical transmission line support member, which is arranged on the other surface side of the transparent substrate and supports one end of an optical transmission line, the method comprising:

forming a guide hole in either the transparent substrate or the optical transmission line support member;

forming a fitting hole, into which the guide pin is to be fitted, in the other one of the transparent substrate and the optical transmission line support member, in which the guide hole is not formed, such that the diameter of the fitting hole is made larger as compared with the diameter of the guide pin;

inserting a part of the guide pin into the fitting hole;

filling up a gap between the guide pin and the fitting hole with a filler material, which is cured by carrying out a predetermined processing;

adjusting a position of the guide pin within a range in which the guide pin is movable inside the fitting hole; and

curing the filler material by carrying out the predetermined processing to the filler material, which is filled up in the gap between the guide pin and the fitting hole.

4. The method of manufacturing the optical module according to claim 3, the guide pin being inserted into the fitting hole such that, at least, a part of the guide pin is inserted into a guide pin holding hole by a jig having the guide pin holding hole, whose diameter is substantially the same as the diameter of the guide pin.

5. The method of manufacturing the optical module according to claim 3, further comprising:

mounting the optical transmission line support member on the transparent substrate, such that the guide pin, which is fixed in the fitting hole by having cured the filler material, is inserted into the guide hole.

6. A method of manufacturing an optical module including a transparent substrate having an electro-optical element on one surface side and an optical transmission line support member, which is arranged on the other surface side of the transparent substrate and supports one end of an optical transmission line, the method comprising:

forming a guide pin in either the transparent substrate or the optical transmission line support member;

forming a guide hole, in which the guide pin is to be inserted, in the other one of the transparent substrate and the optical transmission line support member, in which the guide pin is not formed, such that the diameter of the guide hole is made larger to produce a gap between the guide pin and the guide hole when the guide pin is inserted into the guide hole;

mounting the optical transmission line support member on the transparent substrate such that the guide pin is inserted into the guide hole;

filling up the gap between the guide pin and the guide hole with a filler material, which is cured by carrying out a predetermined processing;

adjusting a position of the optical transmission line support member within a range in which the guide pin is movable inside the guide hole; and

curing the filler material by carrying out the predetermined processing to the filler material, which is filled up in the gap between the guide pin and the guide hole.

7. A method of manufacturing an optical module including a transparent substrate having an electro-optical element on one surface side, an optical transmission line support member, which is arranged on the other surface side of the transparent substrate and supports one end of an optical transmission line, and an optical coupling member, which is arranged on the other side surface of the transparent substrate and has a role of optical coupling the electro-optical element with the optical transmission line, the method comprising:

forming a guide pin in either the optical transmission line support member or the optical coupling member;

forming a guide hole, in which the guide pin is to be inserted, in the other one of the optical transmission line support member and the optical coupling member, in which the guide pin is not formed, such that the diameter of the guide hole is made larger to produce a gap between the guide pin and the guide hole when the guide pin is inserted into the guide hole;

mounting the optical transmission line support member on the transparent substrate such that the guide pin is inserted into the guide hole;

filling up the gap between the guide pin and the guide hole with a filler material, which is cured by carrying out a predetermined processing;

adjusting a position of the optical transmission line support member within a range in which the guide pin is movable inside the guide hole; and

curing the filler material by carrying out the predetermined processing to the filler material, which is filled up in the gap between the guide pin and the guide hole.

8. The method of manufacturing the optical module according to claim 6, further comprising:

pulling out the guide pin from the guide hole after having cured the filler material

9. The method of manufacturing the optical module according to claim 1, the filler material including either a thermosetting adhesive or an optically-cured adhesive.

10. An optical module, comprising:

a transparent substrate, which has optical permeability to the wavelength of the light used;

an electro-optical element, which is arranged on one surface side of the transparent substrate and radiates signal light toward the other surface side of the transparent substrate according to a provided electrical signal, or which generates an electrical signal according to the luminous intensity of signal light provided from the other surface side of the transparent substrate;

an optical transmission line support member, which is arranged on the other surface side of the transparent substrate and supports one end of an optical transmission line; and

an optical coupling member, which is arranged on the other surface side of the transparent substrate and performs optical coupling between the electro-optical element and the optical transmission line, either the transparent substrate or the optical transmission line support member has a guide pin, while the other one having a guide hole, in which the guide pin is to be inserted, and the diameter of the guide hole is made larger as compared with the diameter of the guide pin so that a gap is produced between the guide pin and the guide hole, and the gap between the guide pin and the guide hole is filled up with a predetermined filler material.

11. The optical module according to claim 10, the optical transmission line support member supporting the optical transmission line such that the extension direction of the optical transmission line becomes substantially parallel to the other surface side of the transparent substrate, and the optical coupling member has a reflective portion, which changes the course of signal light radiated from the electro-optical element by substantially 90 degrees to be guided to the optical transmission line, or which changes the course of signal light radiated from the optical transmission line by substantially 90 degrees to be guided to the electro-optical element, and the guide pin being arranged to be substantially orthogonal to the other surface side of the transparent substrate.

12. An optical module, comprising:

a transparent substrate which has optical permeability to the wavelength of the light used;

an electro-optical element, which is arranged on one surface side of the transparent substrate and radiates signal light toward the other surface side of the transparent substrate according to a provided electrical signal, or which generates an electrical signal

according to the luminous intensity of signal light provided from the other surface side of the transparent substrate;

an optical transmission line support member, which is arranged on the other surface side of the transparent substrate and supports one end of an optical transmission line; and

an optical coupling member, which is arranged on the other surface side of the transparent substrate and performs optical coupling between the electro-optical element and the optical transmission line, either the optical transmission line support member or the optical coupling member having a guide pin and the other one having a guide hole, in which the guide pin is to be inserted, and the diameter of the guide hole being made larger as compared with the diameter of the guide pin so that a gap is produced between the guide pin and the guide hole, and the gap between the guide pin and the guide hole being filled up with a predetermined filler material.

13. The optical module according to claim 12, the optical transmission line support member supporting the optical transmission line such that the extension direction of the optical transmission line becomes substantially parallel to the other surface side of the transparent substrate, and the optical coupling member having a reflective portion, which changes the course of signal light radiated from the electro-optical element by substantially 90 degrees to be guided to the optical transmission line, or which changes the course of signal light radiated from the optical transmission line by substantially 90 degrees to be guided to the electro-optical element, and the guide pin being arranged to become substantially parallel to the extension direction of the optical transmission line.

14. The optical module according to claim 10, the optical coupling member further having a lens, which converges signal light radiated from the electro-optical element to be guided to the reflective portion, or which converges signal light radiated from the optical transmission line and then reflected by the reflective portion to be guided to the electro-optical element.

15. The optical module according to claim 10, the optical coupling member further having a first lens, which turns signal light radiated from the electro-optical element into a parallel light to be guided to the reflective portion or which converges signal light radiated from the optical transmission line and then reflected by the reflective portion to be guided to the electro-optical element, and a second lens which converges signal light radiated from the electro-optical element and then reflected by the reflective portion to be guided to the optical

transmission line, or which turns signal light radiated from the optical transmission line into a parallel light to be guided to the reflective portion.

16. The optical module according to claim 10, the optical coupling member further having a third lens, which turns signal light radiated from the electro-optical element into a parallel light to be guided to the reflective portion, or which converges signal light radiated from the optical transmission line and then reflected by the reflective portion to be guided to the electro-optical element, and the optical transmission line support member further having a fourth lens which converges signal light radiated from the electro-optical element and then reflected by the reflective portion to be guided to the optical transmission line, or which turns signal light radiated from the optical transmission line into a parallel light to be guided to the reflective portion.

17. The optical module according to claim 11, the reflective portion having either a metal film or a dielectric multi- layered film.

18. A hybrid integrated circuit, comprising:

the optical module according to claim 10.

19. A hybrid circuit board, comprising:

the optical module according to claim 10.

20. An electronic apparatus, comprising:

the optical module according to claim 10.

21. A method of manufacturing an opto-electricity mixed device, including:

a circuit board, having a conductive film that transmits an electrical signal and an optical transmission line having a roll of transmitting signal light; and

a hybrid integrated circuit chip, which is coupled to the circuit board and has a role of conversion between the electrical signal and the signal light, the method comprising:

forming a guide pin in either the hybrid integrated circuit chip or the circuit board;

forming a guide hole in the other one of the hybrid integrated circuit chip and the circuit board, in which the guide pin is to be inserted, such that the diameter of the guide hole is made larger as compared with the diameter of the guide pin;

arranging a jig having a protruding portion on top of the circuit board, whose diameter is substantially the same as the diameter of the guide pin, such that the protruding portion is inserted into the guide hole;

filling up the gap between the protruding portion and the guide hole with a filler material, which is cured by carrying out a predetermined processing;

adjusting a position of the jig within a range in which the protruding portion is movable inside the guide hole;

curing the filler material by carrying out the predetermined processing to the filler material, which is filled up in the gap between the protruding portion and the guide hole; and

pulling out the protruding portion from the guide hole after having cured the filler material.

22. A method of manufacturing an opto-electricity mixed device, including a circuit board having a conductive film that transmits an electrical signal and an optical transmission line transmitting signal light, and a hybrid integrated circuit chip, which is coupled to the circuit board and converts the electrical signal into signal light, vice versa, the method comprising:

forming a guide pin in either the hybrid integrated circuit chip or the circuit board;

forming a guide hole, in which the guide pin is to be inserted, in the other one of the hybrid integrated circuit chip and the circuit board, and whose diameter is made larger so that a gap is produced between the guide pin and the guide hole when the guide pin is inserted into the guide hole;

mounting the hybrid integrated circuit chip on top of the circuit board such that the guide pin is inserted into the guide hole;

filling up the gap between the guide pin and the guide hole with a filler material, which is cured by carrying out a predetermined processing;

adjusting a position of the hybrid integrated circuit chip within a range in which the guide pin is movable inside the guide hole; and

curing the filler material by carrying out the predetermined processing to the filler material, which is filled up in the gap between the guide pin and the guide hole.

23. The manufacturing method of the opto-electricity mixed device according to claim 21, the hybrid integrated circuit chip comprising:

a transparent substrate having optical permeability to the wavelength of the light used, and an electro-optical element which is arranged on one surface side of the transparent substrate and radiates signal light toward the other surface side of the transparent substrate according to a provided electrical signal, or which generates an electrical signal according to the luminous intensity of signal light provided from the other surface side of the

transparent substrate, and either the guide pin or the guide hole is formed on the transparent substrate.

24. An opto-electricity mixed device, comprising:

a circuit board having a conductive film that transmits an electrical signal and an optical transmission line transmitting signal light; and

a hybrid integrated circuit chip, which is coupled to the circuit board and converts the electrical signal into the signal light, or vice versa, either the circuit board or the hybrid integrated circuit chip having a guide pin, and the other one having a guide hole, in which the guide pin is to be inserted and whose diameter is made larger as compared with the diameter of the guide pin so that a gap is produced between the guide pin and the guide hole, and the gap between the guide pin and the guide hole is filled up with a predetermined filler material.

25. The opto-electricity mixed device according to claim 24, the hybrid integrated circuit chip comprising:

a transparent substrate, which has optical permeability to the wavelength of the light used, and

an electro-optical element, which is arranged on one surface side of the transparent substrate and radiates signal light toward the other surface side of the transparent substrate according to a provided electrical signal, or which generates an electrical signal according to the luminous intensity of signal light provided from the other surface side of the transparent substrate, the guide pin or the guide hole being formed on the transparent substrate.